



A.D. 1856 N° 1815.

S P E C I F I C A T I O N

OF

THOMAS WICKSTEED.

—
SEWAGE.
—

L O N D O N :

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1857.



A.D. 1856 N° 1815.

Sewage.

LETTERS PATENT to Thomas Wicksteed, of Coleman Street, in the City of London, Civil Engineer, for the Invention of “**IMPROVEMENTS IN SEPARATING SEWAGE AND OTHER MATTERS FROM WATER OR FLUID MIXED THEREWITH.**”

Sealed the 14th November 1856, and dated the 31st July 1856.

PROVISIONAL SPECIFICATION left by the said Thomas Wicksteed at the Office of the Commissioners of Patents, with his Petition, on the 31st July 1856.

I, THOMAS WICKSTEED, of Coleman Street, in the City of London, Civil
5 Engineer, do hereby declare the nature of the Invention for “**IMPROVEMENTS IN SEPARATING SEWAGE AND OTHER MATTERS FROM WATER OR FLUID MIXED THEREWITH,**” to be as follows:—

This Invention has for its object improvements in separating sewage and other matters from water or fluid mixed therewith.

10 For these purposes the waters or fluids are raised into suitable cisterns or reservoirs, situated at suitable heights above the filtering apparatus, and the means resorted to for raising the fluids are endless bands or chains of buckets, which deliver the fluid into the reservoirs or cisterns. From the bottom of each of the cisterns or reservoirs a pipe or pipes descend, according as one or
15 more filtering apparatus may be applied to each cistern or reservoir. In each supply pipe is a cock to shut off the supply. The filtering apparatus used is arranged suitably for being moved under and from the supply pipe, and for being moved on a railway below, by which when a filter becomes full it may

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be readily removed and another apparatus brought into position to be filled. It is preferred to have the cisterns or reservoirs at different elevations, and to supply the fluid first to a filtering apparatus from the lowest cistern or reservoir, then, as more pressure or greater column is required, the supply is changed from the lower to the higher cistern or reservoir. The filtering apparatus used 5 consists of a series of planks or surfaces of wood, in both sides of which numerous grooves are cut, and it is preferred that these surfaces should be of a square form, with a hole through the middle, in and through which a bush of metal is fixed, which aids in fixing a cover of gauze or perforated metal and a surface of woven fabric on either side of each of the planks, the outer edges 10 of the gauze or perforated metal and the woven fabric being fixed to the outer edges of the planks. Several of these planks or grooved surfaces are placed one on the other, and are securely held together between a top and bottom plate or frame of metal, in the upper one of which is an air tube and cock for the passage away of air. Between each pair of planks or grooved surfaces is a 15 frame, the inner surfaces of which are inclined or bevilled to facilitate the frames being removed from the moulded matters separated from the water or fluid passed into the filter. The top and bottom frames or plates are held together by rods and cotters, and the sides of the frames are held together by rods and screw nuts. 20

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Thomas Wicksteed in the Great Seal Patent Office on the 31st January 1857.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, THOMAS WICKSTEED, of Coleman Street, in the City of London, Civil Engineer, send 25 greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Thirty-first day of July, in the year of our Lord One thousand eight hundred and fifty-six, in the twentieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said 30 Thomas Wicksteed, Her special licence that I, the said Thomas Wicksteed, my executors, administrators, and assigns, or such others as I, the said Thomas Wicksteed, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and 35 vend, within the United Kingdom of Great Britain and Ireland, the Channel

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Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN SEPARATING SEWAGE AND OTHER MATTERS FROM WATER OR FLUID MIXED THEREWITH," upon the condition (amongst others) that I, the said Thomas Wicksteed, my executors or administrators, by an instrument in writing under my, or their,
5 or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

10 NOW KNOW YE, that I, the said Thomas Wicksteed, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

This Invention has for its object improvements in separating sewage and
15 other matters from water or fluid mixed therewith. For these purposes the waters or fluids are raised into suitable cisterns or reservoirs, situated at suitable heights above the filtering apparatus, and the means resorted to for raising the fluids are endless bands or chains of buckets, which deliver the fluid into the reservoirs or cisterns. From the bottom of each of the cisterns or reservoirs
20 a pipe or pipes descend, according as one or more filtering apparatus may be applied to each cistern or reservoir. In each supply pipe is a cock to shut off the supply. The filtering apparatus used is arranged suitably for being moved under and from the supply pipe, and for being moved on a railway below, by which when a filter becomes full it may be readily removed and another
25 apparatus brought into position to be filled. It is preferred to have the cisterns or reservoirs at different elevations, and to supply the fluid first to a filtering apparatus from the lowest cistern or reservoir, then, as more pressure or greater column is required, the supply is changed from the lower to the higher cistern or reservoir. The filtering apparatus used consists of a series
30 of planks or surfaces of wood, in both sides of which numerous grooves are cut; and it is preferred that these surfaces should be of a square form, with a hole through the middle, in and through which a bush of metal is fixed, which aids in fixing a cover of gauze or perforated metal and a surface of woven fabric on either side of each of the planks, the outer edges of the gauze
35 or perforated metal and the woven fabric being fixed to the outer edges of the planks. Several of these planks or grooved surfaces are placed one on the other, and are securely held together between a top and bottom plate or frame of metal, in the upper one of which is an air tube and cock for the passage away of air. Between each pair of planks or grooved surfaces is a frame,

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the inner surfaces of which are inclined or bevilled to facilitate the frames being removed from the moulded matters separated from the water or fluid passed into the filter. The top and bottom frames or plates are held together by rods and cotters, and the sides of the frames are held together by rods and screw nuts. 5

Having thus stated the nature of my said Invention, I will proceed more fully to describe the manner of performing the same.

DESCRIPTION OF THE DRAWINGS.

Figure 1 shows a side view view, Figure 2 a plan, Figure 3 a vertical section, and Figure 4 a horizontal section, of a filtering apparatus combined 10 according to my Invention. Figure 5 shows a vertical section of the upper part of the filtering apparatus on a larger scale. In each of these Figures the same letters indicate the same parts. a, a , are planks or surfaces of wood, grooved on both their surfaces with numerous grooves a^1, a^1 , such grooves being made, by preference, in two directions crossing each other at right angles, 15 though they may cross each other at other angles. By these means numerous channels are produced at intervals apart for conducting away the filtered fluid to the outer edges of the planks as it filters through the materials placed on and affixed to the two surfaces of each plank a, a , and such materials will receive support at the numerous prominent parts of the surfaces of the planks 20 which are between the grooves. I would remark that I am aware that grooved planks or surfaces have before been used with woven fabrics between them for filtering purposes; I do not, therefore, claim their use generally for such purposes, but only the peculiar combination of apparatus herein shewn and described. On both the surfaces of each grooved plank a, a , are fixed woven 25 wire gauze, and over the wire gauze one or more layers of woven cloth, such as moleskin, or others. Through the central or other convenient part or parts of each grooved plank a there is an opening a^2 bushed with metal, as shown, the flanches and screw nuts of such bushings aiding to fix the wire gauze and woven fabrics in their proper places, and the coverings of wire gauze 30 and of woven fabrics are fixed at the edges of the planks by tacks or otherwise. b, b , are frames placed between the planks a, a , in order to retain them apart a distance equal to the thickness of residual matters it is desired to obtain from the sewage or other fluids passed through such filtering apparatus. In order to combine and tightly hold a series of grooved planks a and frames b 35 into a complete apparatus in such manner as to offer a ready means of taking apart and of putting together such apparatus, the following parts are used:— c, d , are top and bottom plates, which are combined together by the rods e, e ,

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and they are when in their places, and have a series of grooved planks *a* and frames *b* between them, drawn tightly towards each other by cotters or keys, or such like fastenings *f, f*. The rods or bolts *g, g*, and their nuts are for holding together the several parts of which each of the grooved planks *a* is composed. *h* is a cock for letting out air at the commencement of the process, and the same is to be closed on the apparatus becoming full of the sewage or fluid to be filtered. In filtering sewage and other fluids on a large scale it is important that the same should not be lifted to a greater height than is absolutely necessary, and yet is desirable that filters, such as are above described, should be subjected to more and more pressure as they become more and more filled with residual matters in a harder and harder condition in the spaces between the several planks or grooved surfaces. I arrange a series of cisterns or reservoirs one above the other, and in the first instance the outlet pipe of the lowest cistern or reservoir is connected to the inlet pipe *g¹* of the filter apparatus, when the sewage or fluid will for some time run and filter through and run off on all sides very freely. So soon as more pressure is required, the supply is shut off from the lowest reservoir or cistern, and the supply is then turned on from the cistern or reservoir above, and so on, according to the number of reservoirs or cisterns used one above the other. I prefer to raise sewage into the several cisterns or reservoirs by endless chains of buckets, as is well understood, or sewage or other fluid may be raised by other convenient means. When the filter has become charged with the residual matters in a solid or compressed state, which it will do in proportion to the time allowed and the columnal pressure used, the filter is to be disconnected from the supply and the parts separated, when each frame will be charged with the residue which may be delivered from the planks *a, a*, by first lifting off the frame thereon and then turning over the plank. The residual matter may, when desired, be divided in smaller sizes by wires or cutters and dried.

In witness whereof, I, the said Thomas Wicksteed, have hereunto set my hand and seal, this Thirtieth day of January, in the year of our Lord One thousand eight hundred and fifty-seven.

THO^s WICKSTEED. (L.S.)

Witness,

THO^s PHIPPS,

40, Coleman Street.

LONDON :

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A.D. 1856. July. 31. N^o 1315.
T. WICKSTEED'S SPECIFICATION.

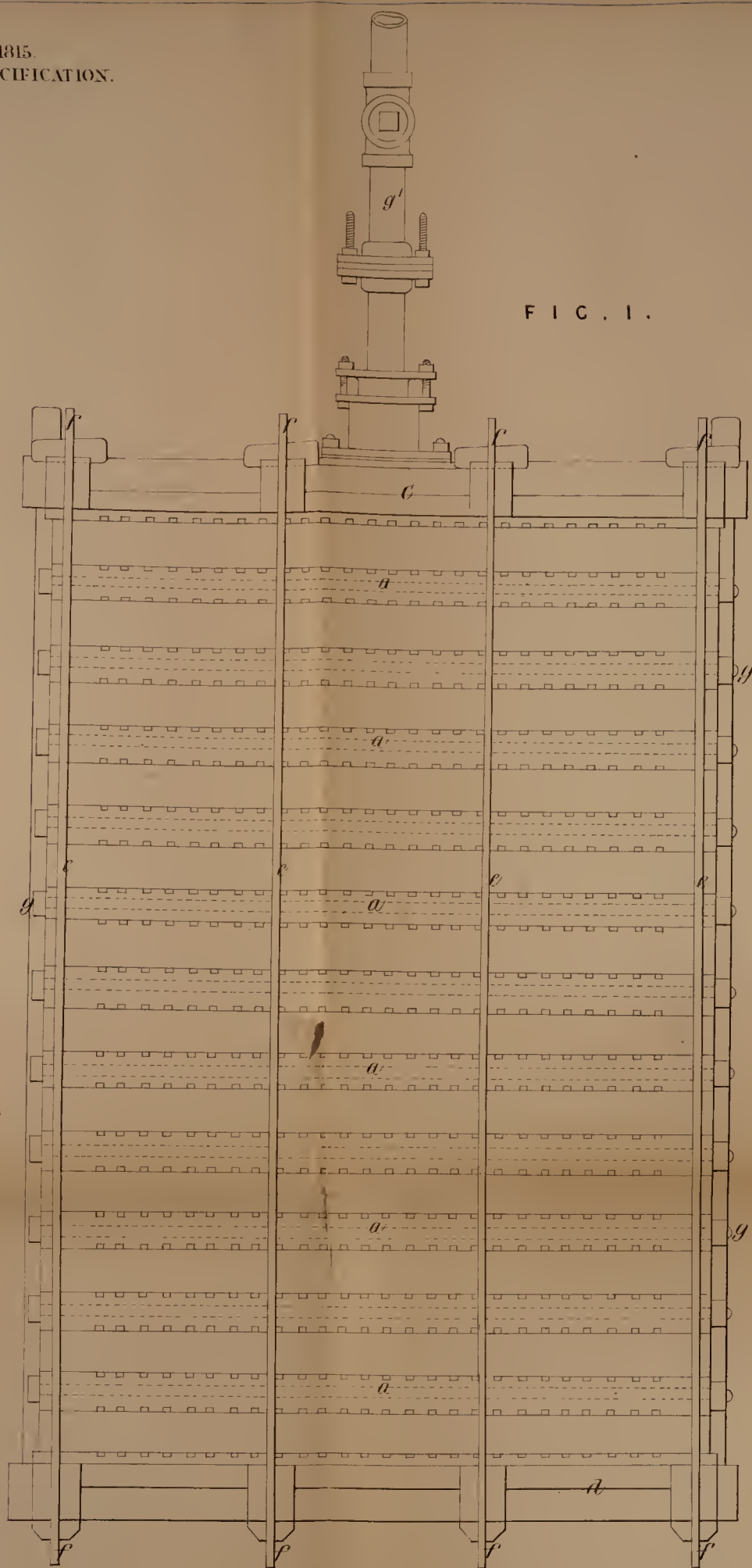


FIG. 2.

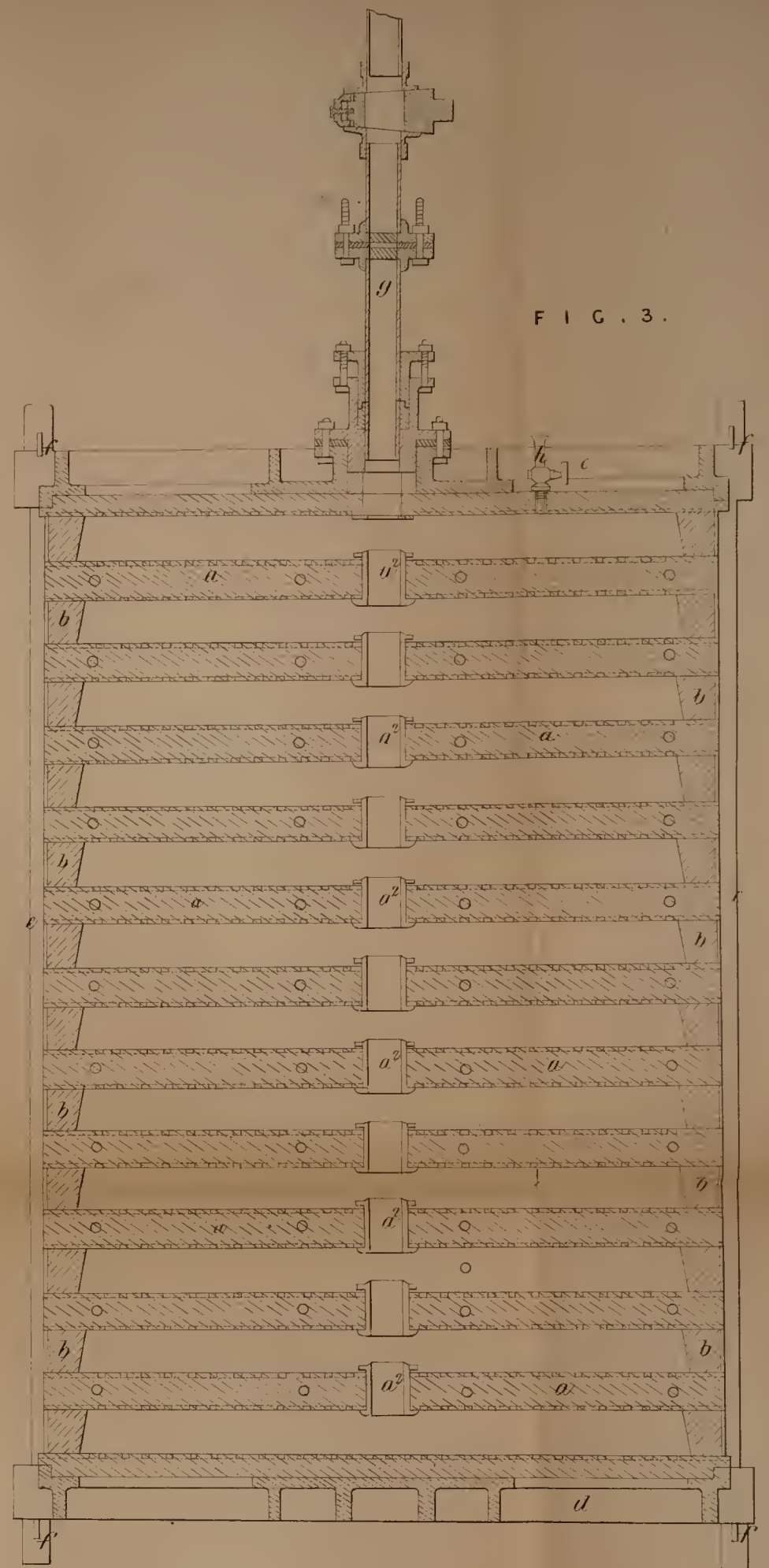
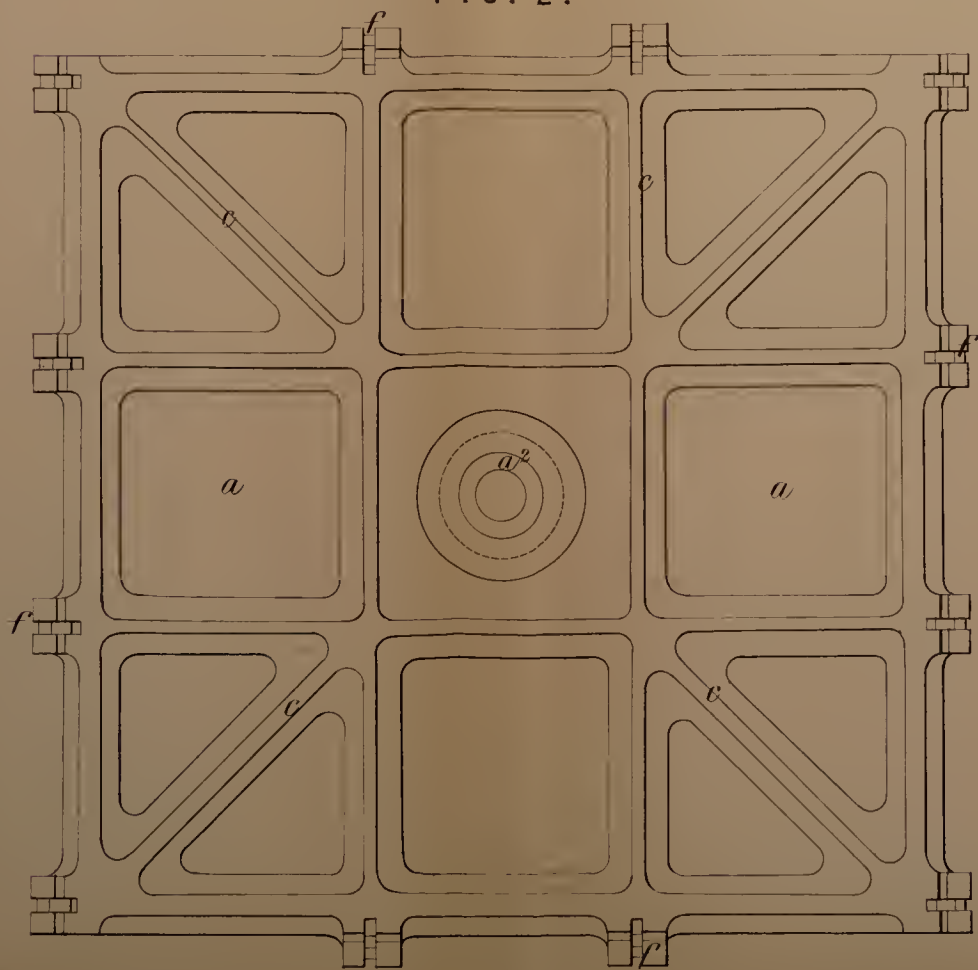
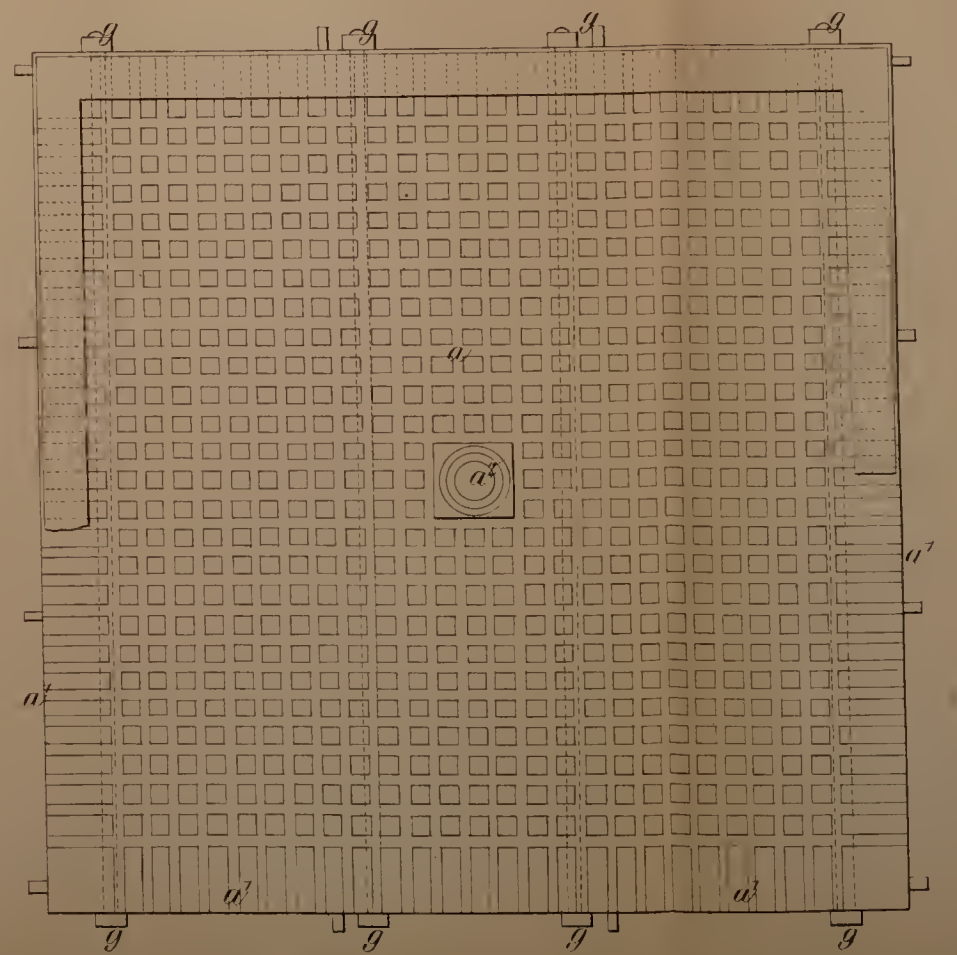


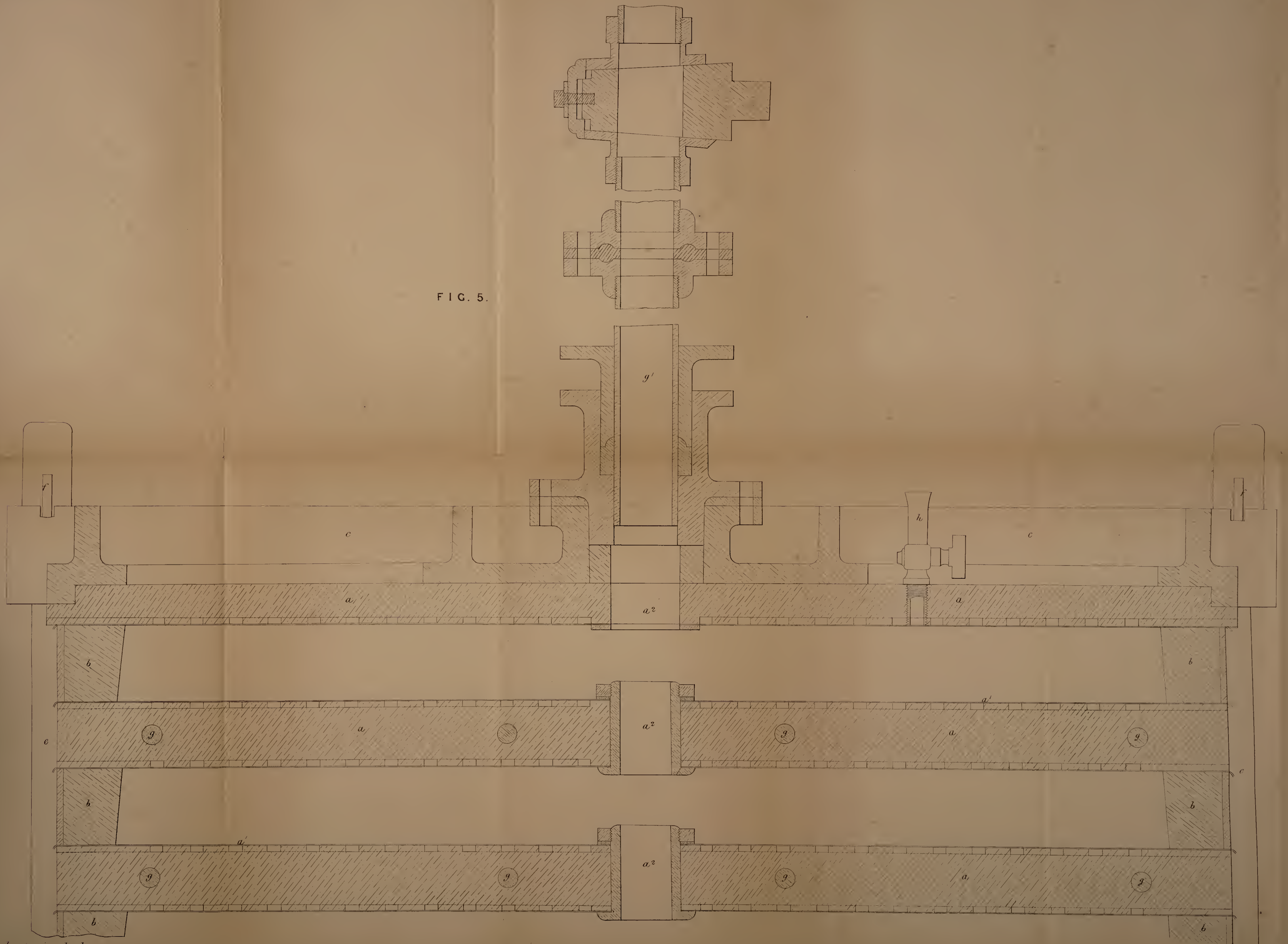
FIG. 4.



The third drawing is colored

Drawn on Stone by Malby & Son

FIG. 5.



The filed drawing is colored.

